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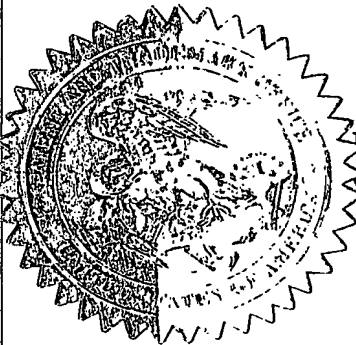
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**APPLICATION NUMBER: 60/409,092****FILING DATE: September 09, 2002****RELATED PCT APPLICATION NUMBER: PCT/US03/28324**

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# PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

| INVENTOR(S)   |  |                             |           |   |                  |
|---|--|-----------------------------|-----------|---|------------------|
| Given Name (first and middle [if any])  |  | Family Name or Surname      |           | Residence<br>(City and either State or Foreign Country)       |                  |
| Lionel J.   |  | Milberger                   |           | Houston, Texas  |                  |
| <input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto                               |  |                             |           |   |                  |
| TITLE OF THE INVENTION (280 characters max)   |  |                             |           |   |                  |
| Flange Connector  |  |                             |           |   |                  |
| Direct all correspondence to: CORRESPONDENCE ADDRESS  |  |                             |           |   |                  |
| <input type="checkbox"/> Customer Number  |  | <input type="text"/>        |           | <div>Place Customer Number<br/>Bar Code Label here</div>      |                  |
| OR<br>Type Customer Number here   |  |                             |           |   |                  |
| <input checked="" type="checkbox"/> Firm or Individual Name   |  | Marvin B. Eickenroht        |           |   |                  |
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| City  |  | Houston                     | State     | Texas   | ZIP 77057        |
| Country   |  | USA                         | Telephone | 713-266-5593  | Fax 713-266-5169 |
| ENCLOSED APPLICATION PARTS (check all that apply)   |  |                             |           |   |                  |
| <input checked="" type="checkbox"/> Specification   |  | Number of Pages 4           |           | <input type="checkbox"/> CD(s), Number <input type="text"/>   |                  |
| <input checked="" type="checkbox"/> Drawing(s)  |  | Number of Sheets 4          |           | <input type="checkbox"/> Other (specify) <input type="text"/> |                  |
| <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76  |  |                             |           |   |                  |
| METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)  |  |                             |           |   |                  |
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| <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.   |  |                             |           |   |                  |
| The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.             |  |                             |           |   |                  |
| <input checked="" type="checkbox"/> No  |  |                             |           |   |                  |
| <input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____                                  |  |                             |           |   |                  |

Respectfully submitted,

SIGNATURE

TYPED or PRINTED NAME Marvin B. Eickenroht

TELEPHONE

713-266-5593

Date

09-09-02

REGISTRATION NO.

17,279

(if appropriate)

Docket Number:

DRIA 141-P

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|--|-------------------------|----------------------------|----------------------------------|
| <b>CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)</b><br>Applicant(s): <b>Lionel J. Milberger</b>  |                         |                            | Docket No.<br><b>DRIA 141-P</b>  |
| Serial No.<br>To Be Assigned   | Filing Date<br>Herewith | Examiner<br>To Be Assigned | Group Art Unit<br>To Be Assigned |
| Invention: <b>FLANGE CONNECTOR</b>   |                         |                            |                                  |
| <p>I hereby certify that the following correspondence:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <b>Provisional Application for Patent Cover Sheet, Provisional Application, Drawings (4 Sheets) and all related documentation</b> </div> <p style="text-align: center;"><i>(Identify type of correspondence)</i></p> <p>is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231 on</p> <p style="text-align: center;"> <u>September 9, 2002</u><br/> <i>(Date)</i> </p> <div style="text-align: right; margin-top: 20px;"> <p><b>Tricia Skarpa</b><br/> <i>(Typed or Printed Name of Person Mailing Correspondence)</i></p> <hr style="width: 100%;"/> <p><i>Tricia Skarpa</i><br/> <i>(Signature of Person Mailing Correspondence)</i></p> <hr style="width: 100%;"/> <p><b>EV119109206US</b><br/> <i>("Express Mail" Mailing Label Number)</i></p> <hr style="width: 100%;"/> </div> |                         |                            |                                  |
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# PROVISIONAL APPLICATION

**TITLE: FLANGE CONNECTOR**

**INVENTOR: LIONEL J. MILBERGER**

## Background

A tieback connector is sometimes used to tieback a subsea well to a SPAR or TLP with a tieback connector. This connector connects to the subsea wellhead and has a tapered stress joint on the top of the tieback connector. A riser connects to the top of the stress joint. The riser, stress joint and tieback connector are all run as a unit.

Since the tieback connector and stress joint are both a high bending moment area of the riser system, it is important to make them with low stress concentrations in the outermost geometry. There are two reasons to make the upper tieback connector body and the stress joint in two separate pieces.

1. The outer and upper most assembly of the tieback connector (namely the hydraulic actuation mechanisms, etc.) must be assembled from the top. If the stress joint is integral to the connector body, then this assembly must slide over a very long length of the stress joint, say 20-40 feet. Such a long length makes assembly of the tieback connector difficult and time consuming. It is desirable to place a connector between the stress joint and the tieback connector body.
2. It may be desirable to make the stress joint from a different material than the upper body of the connector. For example the stress joint may be made from titanium and the upper body might be made from a low alloy steel. In such a case, there must be a mechanical connector between the stress joint and the

connector upper body. The assembly advantages in one (1) above are obtained by placed this connector flange between these two parts. Also where dissimilar materials are present, it might be desirous to electrically insulate the two dissimilar materials with an insulation material.

#### Description of Invention

The present invention provides an apparatus for connecting the upper body of a tieback connector to a stress joint whether they are made from similar or dissimilar metals. It is desirous to have this connector to be generally of a flange type examples of which are described by alternative arrangement shown in attached drawings A to D.

As shown in Drawing A, shown in broken lines, the tieback connector TB which is disclosed in co-pending Application No. 09/954,995 assigned to the assignee of this application, includes an elongate tubular member 10 about which an operator 11 is disposed for use in moving a latch ring between latched and unlatched positions, as assigned to the assignee of the present invention.

As shown in Drawing A, a flange connector FC is connected to the upper of the tubular member 10 by threads 12 about its inner diameter which are made up with threads 13 about the OD of the upper end of the tubular member, following assembly of the operator 11 over the upper end of the tubular member. When the flange is so connected, its upper end 14 is at essentially the same elevation as the upper end 15 of the tubular member. The outer diameter of the flange is substantially that of the flanged lower end 15A of the stress joint SJ connected above it as well as operator, and in any case not substantially greater.

The flanged lower end 15A of the stress joint is connected to the upper end of the flange FC by bolt 16 extending through aligned holes in the flange for make up with a threaded socket 17 in the upper end of the flange in order to draw the ends of the flange and connector FC toward on another by means of a nut 18.

The upper end of the inner diameter of the tubular member and lower end of the inner diameter of the stress joint have preparations to receive a gasket G for sealing between them as their flanges are drawn together.

A washer 31 disposed within a recess in the upper side of the flanged end of the stress joint, and held down by the nut, may be of a different material than the connector, such as an insulating material to electrically isolate the stress joint from the flange.

Drawing B shows a modification of the apparatus of Drawing A in that a bent ring R of insulating material is held tightly between the lower end of the stress joint and the upper end of the tubular member and between a preparation on the bore of the stress joint and the upper end of the gasket G.

Drawing C shows another modification of the apparatus in which a flange 20 is held between the flange connector FC and upper end of the tubular member 10 and the flanged lower end is of the stress joint. The flange 20 is different material, preferably insulating material than the stress joint and tubular member.

The form of the apparatus shown in Fig. D differs from those previously described in that a stress joint is connected to the upper end of the tubular member 10 by a flange connector 30 which, instead of being threaded thereabout, is connected to

and above its upper end by an expandible and contractible latch ring 36. The latch has upper and lower teeth adapted, when contracted, to engage grooves about the adjacent ends of a lower extension of the flange and the tubular member to connect than in end to end relation.

As in the prior forms, the lower flanged end of the stress joint is connected to the upper face of the flange connector by means of bolts 33 which extend through holes in the stress joint flange for threaded connection within sockets in the upper face of the flange.

As in prior forms of the apparatus, the bolts extend through washers of insulating material held by nut 34 on the bolts in a recess in the top side of flanged lower end of the stress joint. The flange 30 may also be of a material which insulates the stress joint from the connector.

The latch ring is carried by a cam ring 32 which is suspended by a bolt from the lower side of the flange connector to permit it to be raised to force the latch 36 into the latched position and lowered to permit the latch to expand out of latching position. When unlatched, ring 32 may be lowered with the flange connector for connection to the tubular member 10, following which the lower end of the stress joint may be connected to the upper end of the flange connector.

As in prior forms, the lower end of the flange and upper end of the tubular member having conical proportions to receive gasket G for sealing between them as their ends are forced into end to end engagement by the latch ring.

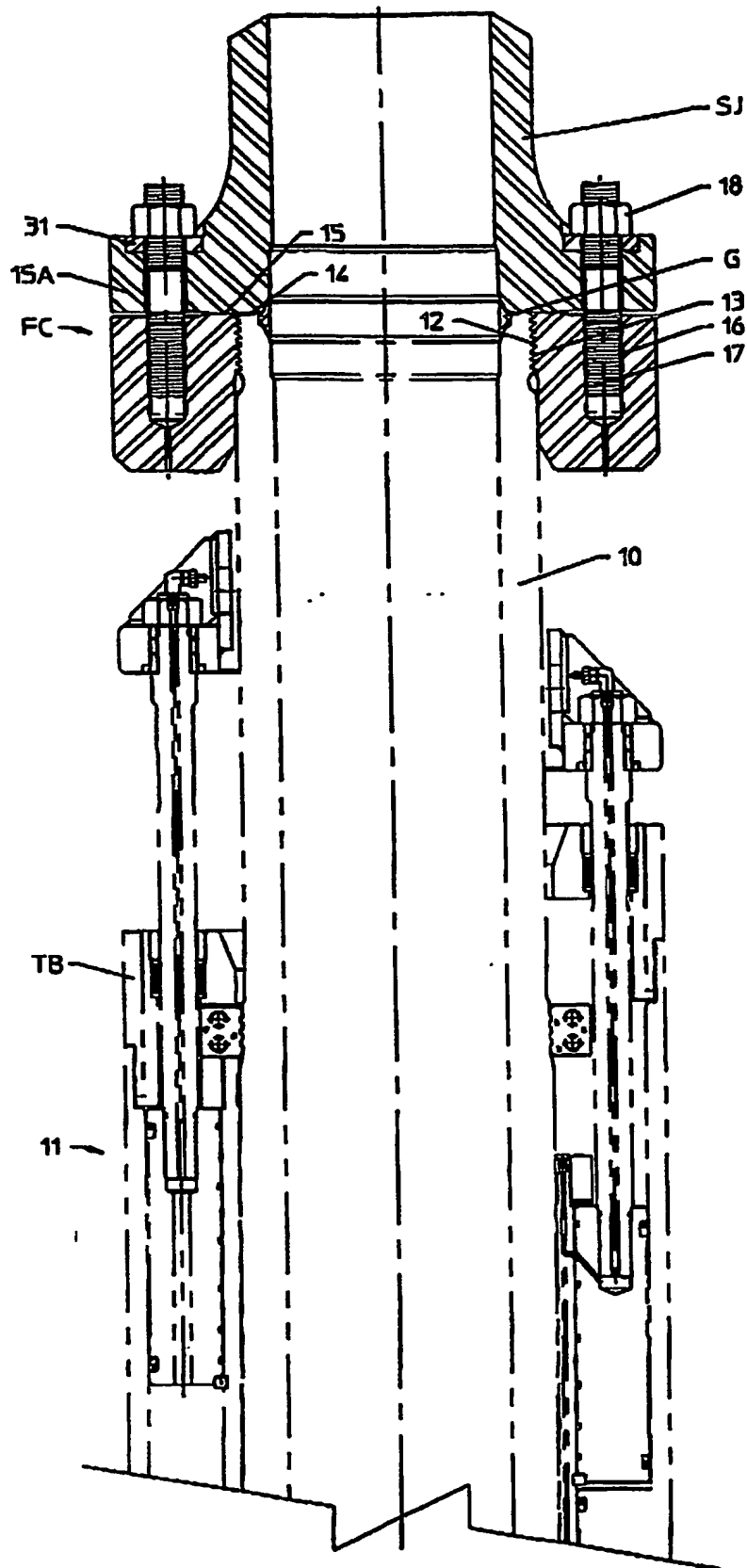


FIGURE A





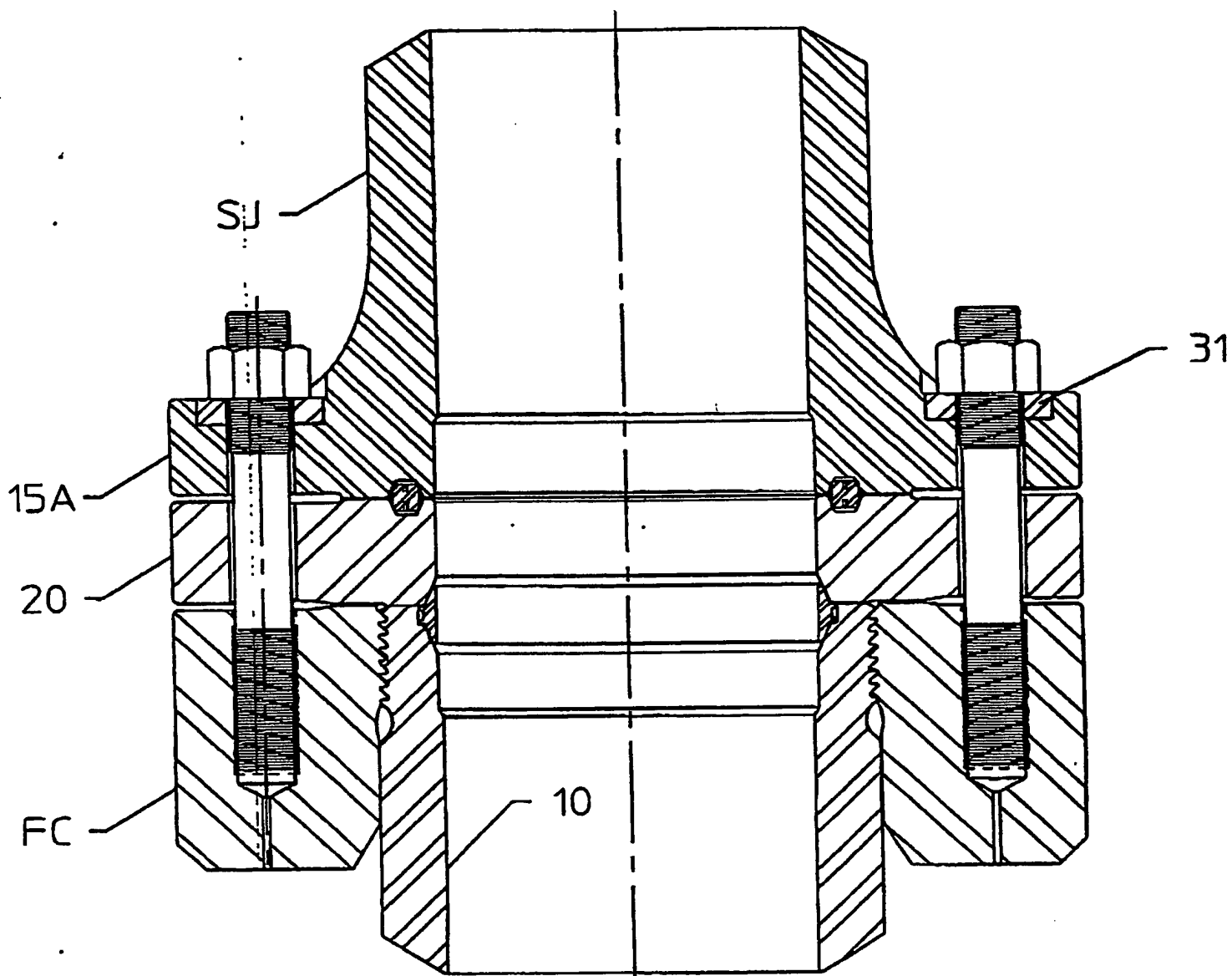


FIGURE C

FIGURE D